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ESCAP II: Evaluation Results for Changes in Mover and Residence Status in the A.C.E.

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EXECUTIVE SUMMARY

How did changes in mover status affect the overall match rate?

Changes in mover status based on the Evaluation Followup Interview (EFU) suggest a possible overestimate of the production match rate. Treating the whole United States as one poststrata, it is estimated that the changes in mover status suggest the overall match rate was overestimated by about 0.15 percentage points. This would lead to an underestimate in the dual system estimate (DSE) of about 450,000. However, that could be affected in part by possible overestimates of nonmovers and nonresidents based on the EFU data.

Note that changes in mover status by themselves do not cause an automatic one-directional change in the DSE. The match rate for P-sample people (M / N_p) is:

$$\frac{M}{N_P} = \frac{M_n + \frac{M_o}{N_o} * N_i}{N_n + N_i}$$

where: M_n = Number of nonmover matches
N_n = Number of nonmover Census Day residents
M_o = Number of outmover matches
N_o = Number of outmover Census Day residents
N_i = Number of inmovers

The numerator of this formula is an estimate of the number of matched people. It is the estimated number of matches among nonmovers plus the estimated number of matches among movers. For movers, the inmovers are used to estimate the number of movers and the outmovers are used to estimate the mover match rate. The mover matches are estimated by the number of inmovers times the estimated match rate among outmovers, which is the estimated number of matched outmovers divided by the estimated number of resident outmovers.

The estimated number of P-sample people, in the denominator, is the estimated number of resident nonmovers plus the estimated number of inmovers.

Note that if mover status changes, the person is still included in the calculations if they remain an inmover or a Census Day resident nonmover or outmover. For example, an inmover based on production who became a nonmover resident based on the EFU would still be in the denominator, moving from the N_i term to the N_n term. Originally, the person would have been in the N_i cell in the numerator, so the number of matches associated with that person would have been based on the outmover match rate. If the person became a nonmover match, he or she would be in the M_n term. Therefore, if the match rate for the inmovers-who-become-nonmovers in that poststrata was the same as the outmover match rate, the overall match rate would not change. In fact, inmovers who became nonmovers could cause the DSE in one poststrata to go

up and in another to go down. That is why changes in mover status do not cause an automatic one-directional change in the DSE.

Description of the EFU

- The EFU was conducted in January and February, 2001 via personal visit interviews in a 1-in-5 sample of the Accuracy and Coverage Evaluation (A.C.E.) clusters.
- The EFU collected information about people listed in either the census or the A.C.E. Person Interview, including inmovers.
- The EFU asked questions with the goal of determining if a person was a resident of the housing unit on Census Day according to the census residence rules.

Mover Status

Mover status is based on a person's residence at the sample housing unit on Census Day and A.C.E. interview day during the A.C.E. Person Interview. Mover status is defined as follows:

- Nonmover–lived at the sample housing unit on Census Day and A.C.E. interview day
- Outmover–lived at the sample housing unit on Census Day, moved out before A.C.E. interview day
- Inmover–moved in after Census Day, lived at the sample housing unit on A.C.E. interview day

For production, mover status is based on the A.C.E. Person Interview. However, mover status could change in the evaluation based on the EFU interview results.

Residence Status

Residence status is determined during the matching operation and is defined as follows:

- Resident–lived at the housing unit on Census Day according to Census residence rules
- Nonresident–lived elsewhere outside of the cluster on Census Day or lived in a housing unit that was incorrectly classified as being in the cluster
- Unresolved–not enough information is collected to identify the person as a resident or not on Census Day

Residence status only applies to nonmovers and outmovers because inmovers did not live at the sample housing unit on Census Day. Residence status was based on the results of person matching and the Person Followup Interview (PFU) during A.C.E. Residence status could change in the evaluation based on the EFU interview results.

Changes that occurred in residence status based on the EFU interview

- As with the E-sample, there were more people changing from residents to nonresidents than vice versa. We found 447 more people (unweighted) went from being residents to nonresidents than in the other direction in the evaluation. Of those, 77 percent were

matches that were included in the PFU and EFU Review, the results of which are documented by Adams and Krejsa in "ESCAP II: Results of the Review of the Person Followup and Evaluation Followup Forms", Report #24.

Changes that occurred in mover status based on the EFU interview

- We found a 2.6 percent gross difference rate between the production and evaluation mover status. The gross difference rate is the proportion of cases whose residence status classifications were different for the production and the evaluation.
- Overall, 99.0 percent of production nonmovers stayed nonmovers in the evaluation.
- Of production outmovers, 22.8 percent were reclassified as nonmovers during the evaluation. We do not know why that happened. It could be because the EFU instrument overestimated the number of nonmovers.
- Of production inmovers, 36.9 percent became nonmovers or outmovers during the evaluation. Of those people, 49.8 percent either were duplicates of already existing A.C.E. people or matches to census people, so we have a good reason to believe that they were really Census Day residents. We believe that either the respondent misidentified these people as having moved in since Census Day or the interviewer entered the data incorrectly into the computer instrument.
- One possible explanation for the movers who became nonmovers is EFU instrument error that could have caused overreporting of nonmovers. In EFU, to be classified a nonmover required less detailed information than to be classified a mover.
- The effect of these mover status changes suggests an overestimate of the match rate and therefore an underestimate in the DSE of roughly 0.15 percentage points. However, any overreporting of nonmover status in EFU could be inflating that number.

1. BACKGROUND

This report provides information about the mover and residence status of people collected in the Census 2000 Accuracy and Coverage Evaluation (A.C.E.) with the A.C.E. Person Interview and included in the Evaluation Followup Interview (EFU).

1.1 Definition of mover status

Mover status (outmover, inmover, and nonmover) is determined based on a person's residence at the sample housing unit on Census Day and the date the A.C.E. Person Interview was conducted at that household:

- Outmovers are people who lived in an A.C.E. sampled housing unit on Census Day, April 1, 2000, but moved out before the A.C.E. interview day
- Inmovers are people who moved into the sampled housing unit after Census Day, but before A.C.E. interview day

- Nonmovers are people who lived at the housing unit on both Census Day and the A.C.E. interview day.

Mover status is set in the A.C.E. Person Interview instrument and is not changed in the production matching and followup operations. However, it can be changed based on the results of the EFU.

1.2 Definition of residence status

Each A.C.E. person is assigned a residence status code of resident or nonresident of the housing unit on Census Day. If the residence status could not be determined from the information collected in the interview, the residence status was unresolved (Childers, 2000).

- Residents are A.C.E. people who are determined to have lived at a housing unit, according to Census residence rules, on Census Day. The person can be matched to a Census person or not matched.

- Nonresidents are A.C.E. people who are:
  - not matched and living elsewhere outside of the cluster,
  - living in a housing unit that was incorrectly classified as being in the cluster,
  - discrepant (i.e., possibly fictitious) in the cluster,
  - a duplicate of another person, or
  - matched to a Census person but determined in a followup interview to be living elsewhere.

- An unresolved person is an A.C.E. person where:
  - not enough information is collected during a follow-up interview to identify the A.C.E. person (either matched or not matched) as a resident or not on Census Day,
  - not enough information is collected during a follow-up interview to determine if a possible match is a match or not, or
  - the person was not attempted to be matched because an incomplete name or invalid name was provided.

Residence status is determined during the production person matching and followup phases and could be changed based on the results of the EFU.

1.3 What this evaluation studies

The Executive Steering Committee on Accuracy and Coverage Evaluation Policy (ESCAP) requested information about the results of the EFU for people classified as movers or nonresidents in the A.C.E. production process. In particular, the ESCAP wants to know if a person's mover status or residence status was incorrectly classified in A.C.E.

2. METHODS

2.1 The Evaluation Followup Interview (EFU)

Here are some facts on the EFU:

- The EFU was conducted in January and February, 2001 via personal visit interviews.
- EFU data were collected in a sample of about 1/5th of A.C.E. clusters in the country.
- The EFU collected information about people listed in either the census or the A.C.E. Person Interview, including inmovers.
- The EFU asks questions about when people moved in and moved out of the sample housing unit as well as special living situations such as specific group quarters and other residences a person might have, with the goal of determining if a person was a resident of the housing unit on Census Day according to the census residence rules.

2.2 How the data were obtained

The EFU collected information on a subset of the people in the evaluation clusters. We then used the information on the EFU form to clerically rematch those people at the National Processing Center (NPC) . The matchers could change the match and residence status of a person from the A.C.E. production. Also, unlike in production, the matchers could change mover status, primarily using the move-in/move-out section of the EFU form described above. The data used in this report will also be a part of the O.14, Analysis of Measurement Error evaluation that is being conducted as part of the Census 2000 evaluation process.

3. LIMITS

The data in this report were obtained from the EFU. The most significant limitation of the EFU is the nine to ten month time lag between Census Day, April 1, 2000, and when the EFU data were collected in January and February, 2001. People move in that time period. People forget or inaccurately report information. The EFU questionnaire was developed to attempt to minimize such problems by asking questions of the respondent that aid them in recalling the correct information. In addition, the clerical matchers had the option to reject the information on the EFU form and accept the production results if they did not believe the EFU data or the data were incomplete–this happened for roughly 10 percent of the people in EFU. Also, the EFU did not have a full field quality assurance program as did the A.C.E. Person Interview and the Person Followup (PFU) operations. Another limitation is a possible overreporting of nonmovers compared to movers in the EFU instrument, which is discussed in more detail in section 4.2.3 of this report.

This report does not include changes to P-sample people from the PFU and EFU Review. In ESCAP II Report #24, Adams and Krejsa (2001) found in the review that the results of the original EFU matching overstated the number of erroneous enumerations. While no review was done on the P-sample side (aside from P-sample people that matched E-sample people), it is

possible that the EFU results presented here overstate the number of nonresidents and the number of movers.

Standard errors are included in parenthesis. They are stratified jackknife estimates, based on the evaluation poststrata, and do not fully capture all phases of A.C.E. sampling.

4. RESULTS

4.1 Overall changes in mover and residence status

Tables 1 and 2 show the changes in mover and residence status between production and the evaluation, respectively. Later tables provide detailed mover and residence status for each type of production mover status. No tables are shown for changes in match status because the EFU form was primarily designed to collect residence information, not information to match A.C.E. and census people. Only people who were sent for followup in EFU are included in the tables. All data provided are weighted to represent the EFU universe for the whole country. Standard errors are included in parentheses.

Table 1. Change in Mover Status

Evaluation	Production			
	Nonmover	**Outmover**	**Inmover**	**Total**
Nonmover	254,278,223 (6,607,093)	1,938,870 (177,569)	2,579,804 (154,280)	**258,796,896** **(6,680,604)**
Outmover	915,520 (153,101)	6,487,393 (421,015)	148,762 (31,828)	**7,551,674** **(456,206)**
Inmover	1,528,595 (189,641)	78,375 (15,695)	4,663,370 (257,057)	**6,270,340** **(346,131)**
Total	**256,722,338** **(6,655,546)**	**8,504,637** **(478,458)**	**7,391,937** **(335,394)**	**272,618,911** **(6,945,722)**

The gross difference rate (the percentage of the cases off the diagonal) is 2.6 percent. The evaluation changed 4.5 million people from movers to nonmovers and 2.4 million the other way. These changes will be discussed in more detail in later sections of this paper.

Table 2 shows the changes in residence status between production and the evaluation. This table is similar to Table 1 in Krejsa and Raglin (2001) except that the rows and columns are switched–evaluation is down the side and production is at the top.

Table 2. Change in Residence Status

Evaluation	Production				
	Resident	**Nonresident**	**Unresolved**	**Inmover**	**Total**
Resident	255,085,831 (6,619,671)	580,241 (62,671)	995,226 (76,398)	2,145,713 (131,941)	**258,807,011** **(6,677,224)**
Nonresident	1,865,081 (177,490)	1,616,613 (142,343)	205,616 (32,118)	400,031 (52,391)	**4,087,341** **(244,559)**
Unresolved	1,440,288 (321,187)	54,137 (13,879)	1,776,972 (155,922)	182,822 (37,510)	**3,454,220** **(378,050)**
Inmover	1,127,089 (169,631)	313,482 (52,177)	166,399 (29,420)	4,663,370 (257,057)	**6,270,340** **(346,131)**
Total	**259,518,288** **(6,697,540)**	**2,564,474** **(169,727)**	**3,144,212** **(189,630)**	**7,391,937** **(335,394)**	**272,618,911** **(6,945,722)**

Examining unweighted counts, there were 814 people who went from resident to nonresident and 367 the other way, a net difference of 447. Of that, 334 of the net difference consists of matched people who were part of the PFU and EFU Review process (77 percent). We looked at unweighted counts because comparing residence status between production and evaluation is problematic due to the noninterview adjustment procedure used in A.C.E. and the evaluations. The noninterview adjustment is one factor in the evaluation weight used in this table. Using this procedure, for cases identified as whole household nonresidents in the evaluation, the noninterview adjustment is zero and thus the weight is zero. Therefore, there are people who moved from residents or unresolved to nonresidents in the evaluation whose weight cannot be represented in such a table.

4.2 Evaluation results by production mover status

This section looks at the combination of changes in mover and residence status. Note that in EFU the matchers had the ability to change mover status, something that could not be done in production.

To make the presentation of the results manageable, they are broken into three tables, one for production nonmovers, one for production outmovers, and one for production inmovers. For example, the first column in Table 1 says there are 256,722,338 nonmovers in production–that is the grand total in the nonmovers table in Section 4.2.1.

4.2.1 EFU results for production nonmovers

Table 3 includes people that were nonmovers in production. During the A.C.E. Person Interview, they were for the most part identified as living at the sample address on A.C.E. interview day and not identified as a person who moved in since Census Day. (The exception is

that a few of them were residence of one housing unit in the cluster on Census Day and another housing unit in the cluster on A.C.E. interview day.)

Table 3: Production Nonmovers: Their Evaluation Residence and Mover Status

Evaluation		Production - Nonmovers				
		Resident	**Nonresident**	**Unresolved**	**Total**	**Percent**
Outmovers	Resident	743,646 (135,248)	14,405 (6,115)	12,686 (5,438)	**770,738** **(135,587)**	
	Nonresident	45,878 (17,840)	4,808 (2,316)	2,759 (2,265)	**53,445** **(18,163)**	
	Unresolved	71,266 (68,348)	0 (0)	20,072 (7,704)	**91,337** **(68,775)**	
	Total	860,790 (152,423)	19,213 (6,529)	35,517 (10,171)	**915,520** **(153,101)**	0.4
Nonmovers	Resident	247,830,297 (6,493,463)	483,203 (56,910)	785,878 (65,055)	**249,099,378** **(6,512,806)**	
	Nonresident	1,496,638 (163,570)	1,180,429 (114,346)	151,999 (27,353)	**2,829,066** **(205,216)**	
	Unresolved	1,161,846 (279,219)	48,747 (13,642)	1,139,186 (120,218)	**2,349,779** **(309,149)**	
	Total	250,488,781 (6,540,084)	1,712,379 (130,315)	2,077,063 (144,469)	**254,278,223** **(6,607,093)**	99.0
Inmovers	All	1,084,283 (169,003)	301,773 (51,779)	142,539 (28,419)	**1,528,595** **(189,641)**	0.6
Total.....		**252,433,854** **(6,578,866)**	**2,033,365** **(141,233)**	**2,255,119** **(148,218)**	**256,722,338** **(6,655,546)**	100.0

Note: Detail may not add to total due to rounding.

Note that very rarely did we find that a nonmover became an inmover or outmover–about 1.0 percent of the time. Given that 99.0 percent of all of the people were nonmovers in both production and the EFU, the changes in residence status here are basically the same as the changes in residence status in the population as a whole that were displayed in Table 2.

4.2.2 EFU results for production outmovers

Table 4 shows what happened to people classified as outmovers based on the A.C.E. Person Interview. These people for the most part were not identified as current residents of the sample address but were identified in a later question as being a person who lived at the address on Census Day but had subsequently moved out.

Table 4: Production Outmovers: Their Evaluation Residence and Mover Status

Evaluation		Production - Outmovers: Resident	Nonresident	Unresolved	Total	Percent
Outmovers	Resident	4,910,956 (365,935)	34,931 (12,514)	141,924 (26,883)	**5,087,811** **(367,847)**	
	Nonresident	235,207 (49,755)	410,473 (85,650)	23,194 (7,538)	**668,874** **(103,044)**	
	Unresolved	176,425 (54,116)	5,390 (2,583)	548,893 (87,078)	**730,708** **(103,659)**	
	Total	5,322,588 (377,793)	450,794 (88,743)	714,011 (92,554)	**6,487,393** **(421,015)**	76.3
Nonmovers	Resident	1,600,932 (166,878)	47,702 (19,163)	54,738 (14,517)	**1,703,372** **(169,691)**	
	Nonresident	87,358 (26,759)	20,903 (11,089)	27,663 (14,373)	**135,925** **(32,765)**	
	Unresolved	30,752 (12,085)	0 (0)	68,821 (21,258)	**99,573** **(28,374)**	
	Total	1,719,042 (169,820)	68,605 (27,488)	151,223 (29,473)	**1,938,870** **(177,569)**	22.8
Inmovers	All	42,805 (11,945)	11,710 (6,262)	23,860 (7,180)	**78,375** **(15,695)**	0.9
Total.....		**7,084,435** **(434,096)**	**531,109** **(96,369)**	**889,093** **(99,406)**	**8,504,637** **(478,458)**	**100.0**

Note: Detail may not add to total due to rounding.

Note that a substantial number of outmovers based on the production process were identified as nonmovers during the EFU. Of the 1,600,932 outmover residents that changed to nonmover residents, over 99 percent did not change match status, so the only thing that changed in EFU for those people was the mover status.

We do not know why so many outmovers were identified as nonmovers in the EFU. Basically, these data say that during the Person Interview the respondent did not correctly identify the person as a current resident but did mention that the person lived there on Census Day. Therefore, if the EFU results are believed, two errors were made–the person was not listed as a current resident at the beginning of the Person Interview and was mentioned later in the Person Interview as a person who had moved out since Census Day.

Possible reasons for outmover to nonmover changes that involve the Person Interview include a person who moved around the time of Census Day and interviewer error in recording the information, among other things. Research to determine what happened could include looking at

trace files from the Person Interview, examining any move-in/move-out dates recorded in EFU, seeing if there is any clustering by interviewer, or if the problem tends to occur for everyone in the household or just some people.

Another possible reason is an overreporting of nonmovers in the EFU. This is discussed in detail in section 4.2.3.

4.2.3 EFU results for production inmovers

Table 5 shows the results from EFU for people who were inmovers in production. These people were identified in the Person Interview as current residents of the sample address who in a later question were noted as moving in after Census Day.

Table 5: Production Inmovers: Their Evaluation Residence and Mover Status

Evaluation		Production Inmovers	Percent
Outmovers	Resident	86,828 (27,305)	
	Nonresident	36,523 (11,058)	
	Unresolved	25,411 (10,199)	
	Total	148,762 (31,828)	2.0
Nonmover	Resident	2,058,885 (128,132)	
	Nonresident	363,509 (51,196)	
	Unresolved	157,411 (35,299)	
	Total	2,579,804 (154,280)	35.0
Inmover	All	4,663,370 (257,057)	63.1
Total.....		**7,391,937 (335,394)**	**100.0**

Note: Detail may not add to total due to rounding.

We found that 29.0 percent of inmovers became Census Day residents ((2,058,885 + 86,828) / 7,391,936), almost all of the time nonmovers. That means that, according to EFU, they did live at the residence but were misidentified in the Person Interview as having moved in since Census Day.

Unlike for the outmovers, we have a check for these people to help decide if the EFU is correctly identifying them as Census Day residents. Production person matching did not include inmovers since they were by definition not Census Day residents, and in Census 2000, we matched people based on Census Day residence. If the EFU form determined that an inmover from production was a Census Day resident, the person could be matched in the evaluation to a census person or become a duplicate to an A.C.E. person who was a nonmover or outmover based on the Person Interview. Of the 2,728,567 production inmovers that became nonmovers or outmovers, 1,087,057 (39.8 percent) matched census people and 272,236 (10.0 percent) were the same people as A.C.E. people previously identified.

We noted, too, that for the outmovers-who-became-nonmovers, two respondent errors were made during the Person Interview: to the initial question determining the current residents and to the inquiry about who had moved out since Census Day. For the inmovers-who-became-nonmovers, to contrast, only one error had to be made for a misclassification to occur–on the question asking who had moved into the residence since Census Day.

Therefore, there is evidence that when EFU said an inmover was really a nonmover or outmover that EFU was often right. Why did this happen? This is a prime area for future research, involving an understanding of how the A.C.E. Person Interview instrument was used by the interviewers. This should include examination of the trace files to help identify reasons for these problems, especially in situations where a person was duplicated as both a nonmover and an inmover.

Some of the change from movers to nonmovers could be due to instrument error in the EFU which caused overreporting of nonmovers compared to movers. For each person, the first question in the EFU is "I'd like to ask you some questions about (your/NAME's) current residence. Is ADDRESS (your/NAME's) usual residence now – that is, where (you/he/she) live(s) and sleep(s) most of the time?" If the answer is "yes"–the person is a current resident–the next question is "Now I'm going to ask you about when (you/NAME) moved IN to ADDRESS. Did (you/NAME) move in to ADDRESS since the beginning of the year 2000?" If the answer to that question is "no", the person was classified a nonmover.

To contrast, to be classified as an outmover, the answer to the first question about current residence had to be "no". The next question was then "When did (you/NAME) move out of ADDRESS?" If the move-out date was before A.C.E. interview day but after Census Day (or in absence of knowing the exact date the respondent indicated the date was in that range), the person was classified as an outmover. Similarly, to be an inmover, the respondent had to indicate the person moved in after "the beginning of the year 2000" and the date was after Census Day but before A.C.E. interview day.

In other words, it was easier for a person to be classified as a nonmover than a mover. To be a nonmover, the respondent only had to indicate current residence and that the person had not moved in since the beginning of 2000. To be classified a mover, though, the respondent had to answer more questions and know something about moving patterns.

If this error is present in the EFU instrument, it could explain the results to some degree. We do not have an explanation for the large number of outmovers that became nonmovers. While we know that many of the inmovers became nonmovers, the match rate among inmovers who became nonmover residents is very low, 48.0 percent, indicating that some of those new nonmover nonmached residents really might not have been inmovers after all.

4.3 Effect on the Match Rate

Note that changes in mover status by themselves do not cause an automatic one-directional change in the DSE. The match rate for P-sample people (M / N_p) is (Childers, 2000):

$$\frac{M}{N_P} = \frac{M_n + \frac{M_o}{N_o} * N_i}{N_n + N_i}$$

where: M_n = Number of nonmover matches
N_n = Number of nonmover Census Day residents
M_o = Number of outmover matches
N_o = Number of outmover Census Day residents
N_i = Number of inmovers

The numerator of this formula is an estimate of the number of matched people. It is the estimated number of matches among nonmovers plus the estimated number of matches among movers. For movers, the inmovers are used to estimate the number of movers and the outmovers are used to estimate the mover match rate. The mover matches are estimated by the number of inmovers times the estimated match rate among outmovers, which is the estimated number of matched outmovers divided by the estimated number of resident outmovers.

The estimated number of P-sample people, in the denominator, is the estimated number of resident nonmovers plus the estimated number of inmovers.

Note that if mover status changes, the person is still included in the calculations if they remain an inmover or a Census Day resident nonmover or outmover. For example, an inmover based on production who became a nonmover resident based on the EFU would still be in the denominator, moving from the N_i term to the N_n term. Originally, the person would have been in the N_i cell in the numerator, so the number of matches associated with that person would have been based on the outmover match rate. If the person became a nonmover match, he or she would be in the M_n term. Therefore, if the match rate for the inmovers-who-become-nonmovers in that poststrata was the same as the outmover match rate, the overall match rate would not change. In fact, inmovers who became nonmovers could cause the DSE in one poststrata to go up and in another to go down. That is why changes in mover status do not cause an automatic one-directional change in the DSE.

In fact, research by Liu, Byrne, and Imel (2001) suggests that the DSE is rather robust in regard to these changes.

We conducted a simulation to get an idea of the effect of mover status changes on the match rate, and therefore the DSE. We calculated the number of inmovers in two ways–first, based on the production mover status ("before"), and second, based on the EFU mover status ("after"). We also calculated the number of matches and Census Day residents. These were held constant between the "before" and "after" scenarios, as much as possible, by using the EFU results. The change in match rate was about -0.15 percent, suggesting that changes in mover status indicate that the match rate was overestimated and therefore the DSE was underestimated. One reason for this change is the low match rate for the inmovers who became nonmovers, 48.0 among nonmover residents.

We indicated that overreporting of nonmover status may cause that match rate to be too low. If so, the differences in the match rate found here may be overestimated. Table 6 compares the effect on the bias of the DSE by changes in mover status. Note that the effect of movers (either inmovers or outmovers) changing to nonmovers is greater in absolute value than the effect of the nonmovers changing to movers. Therefore, if the EFU instrument is overreporting nonmover status, the overall bias would be lower.

Table 6: Effect on the Bias of Changes in Mover Status

Production	Evaluation	Bias (in Thousands)
Movers	Nonmovers	-1,031
Nonmovers	Movers	642
Movers*	Movers	-76
Total	Total	-465

* This row is outmovers that became inmovers and vice versa.

Also note that these match rates were calculated at the national level, not at the poststrata level. We noted that changes in mover status might have different effects in poststrata depending on differences in match rates between nonmovers and movers. This is not captured in a national-level calculation of the match rates.

5. CONCLUSIONS

The EFU data indicates that there were quite a few nonmovers who were incorrectly classified as movers, both in and out of the household. Some of that finding could be due to EFU instrument error but other evidence indicates that some of that movement was accurately measured by the EFU. The result of this movement does not in itself cause a change in the match rate in any

particular direction, but, treating the whole country as one poststrata suggests an overestimate of the match rate of 0.15 percent and therefore an underestimate of the DSE of about 450,000.

Research is needed to discover the source of these discrepancies in mover status–whether the problem is with the Person Interview, the EFU, or a combination of the both, to improve the measure of mover status for future operations.

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